34. (amended) The kit of claim 22, where the chemically cleavable site is selected from the group consisting of dialkoxysilane, 3'-(S)-phosphorothioate, 5'-(S)-phosphorothioate, 3'-(N)-phosphoramidate, [5'-(N)phosphoramidate,] 5'-(N)-phosphoramidate, uracil, and ribose.

54. (amended) A method for determining the size of more than one primer extension product, comprising:

(a) hybridizing a plurality of primers, each having a 5' end and a 3' end, with more than one target nucleic acid, wherein each of said primers

(i) is complementary to at least one target nucleic acid;

(ii) has a first region containing the 5' end of the primer, and

(iii) has a second region, containing the 3' end of the primer and a cleavable site, wherein the 3' end is capable of being extended by an enzyme;

(b) extending the primers with the enzyme to generate a polynucleotide mixture containing more than one extension product;

(c) cleaving more than one extension product at its respective cleavable site to release more than one extension segment, wherein the location of the cleavable site of at least two primers is selected to increase the mass difference between their respective extension segments; and

(d) sizing the released extension segments by mass spectrometry[, whereby said cleaving is effective to increase the read length of the extension segments relative to the read length of the products of step (b)].

66. (amended) The method of claim 54, where at least one cleavable site is selected from the group consisting of dialkoxysilane, 3'-(S)-phosphorothioate, 5'-(S)-phosphorothioate, 3'-(N)-phosphoramidate, [5'-(N)phosphoramidate,] 5'-(N)-phosphoramidate, uracil, and ribose.

69. (amended) A method for determining presence of a polymorphism, comprising:

(a) hybridizing a primer, having a 5' end and a 3' end, with a target nucleic acid suspected of containing a polymorphism, wherein said primer has a first region containing the 5′ end of the primer and a second region containing the 3′ end of the primer and a cleavable site;

(b) extending the 3' end of the primer with a polymerase in the presence of a nucleotide to generate an extension product;

(c) cleaving said extension product at the cleavable site to release an extension segment;

(d) sizing the extension segment by mass spectrometry[, whereby said cleaving is effective to increase the read length of the extension segment relative to the read length of the product of step (b)]; and

(e) identifying any added nucleotides.

85. (amended) The method of claim 69, where the cleavable site is selected from the group consisting of dialkoxysilane, 3'-(S)-phosphorothioate, 5'-(S)-phosphorothioate, 3'-(N)-phosphoramidate, [5'-(N)phosphoramidate,] 5'-(N)-phosphoramidate, uracil, and ribose.

REMARKS

This amendment is submitted simply to clarify the subject matter of claims 7, 34, 54 and 69 and to correct typographical errors in the specification and in claims 66 and 85. Support for the amendments to claims 7 and 34 can be found throughout the specification, for example at page 15, lines 10-14; and page 21, lines 12-15. Support may also be found in claims 66 and 85 as originally filed.